Centers for Population Health and Health Disparities

The purpose of the Centers for Population Health and Health Disparities (CPHHD) is to support interdisciplinary research leading to an understanding and reduction of health disparities in domestic populations. Applicants are invited to propose multilevel, integrated research projects that will elucidate the complex interactions of the social and physical environment, mediating behavioral factors, and biologic pathways that determine health and disease. The CPHHD is expected to create an environment conducive to interdisciplinary and reciprocally beneficial collaborations among biomedical scientists, social scientists, and affected communities, with the common goal of improving population health and reducing health disparities.

This is a trans-NIH request for applications (RFA) sponsored jointly by the NIEHS, the National Cancer Institute (NCI), the National Institute on Aging (NIA), and the Office of Behavioral and Social Science Research. Applicants are encouraged to propose research across disease outcomes or health-related issues relevant for these institutes.

To achieve this goal, the CPHHD will support three or more thematically linked research projects, facility cores that support two or more projects, an administrative core, and pilot projects. The CPHHD will present opportunities to concurrently study biological, behavioral, psychological, cultural, and social precursors of disease.

A key objective is to generate a research program that embraces the concept of multiple levels of analysis in health sciences to examine factors operating at the social/environmental, behavioral/psychological, and biological (organ system, cellular, and molecular) levels. Centers should propose mechanistic and intervention studies across multiple levels of analysis and across diseases and conditions relevant to the mission of the sponsoring institutes.

The theme of a proposed CPHHD research project may be organized to examine *a*) a single condition for which a significant disparity in morbidity and/or mortality between populations has been demonstrated (e.g., obesity, infant mortality, low birth weight, diabetes, CHD, asthma, cancer), its relationship to multiple social and physical environmental determinants, and their mechanistic pathways; or *b*) a particular category of social environmental determinant (e.g., food supply, urban crowding, built environment, social support) and mechanistic pathways by which it affects multiple health outcomes for which disparities have been demonstrated between populations.

This RFA supports research across multiple levels of analysis. Applicants must develop a thematic focus that can be carried across population(s), behavior, and biologic pathways for the diseases or conditions under study. At least two of the following levels must be addressed in proposed research projects.

Social/Environmental Level

More needs to be learned about the effects of social networks, social capital, racism, and other forms of social injustice at the population level on risk factor behaviors, disease incidence, and stage of disease at diagnosis. This includes the influence of social policies, the impact of social hierarchies, and factors related to control in the workplace. Population health models are needed for investigations that include the community as a unit of analysis; measurements of cumulative social, physical, and behavioral antecedents or exposures; the characteristics of "healthy communities" and health-promoting environments; characteristics of "toxic" community environments and interventions to remedy these conditions; protective factors and mechanisms promoting positive health outcomes and disease prevention; human resilience, resistance to disease, and factors supporting positive health behaviors.

Examples of activities relevant to the sponsoring institutes include but are not limited to:

1) examining differential social gradients for specific cancer sites and the contribution of known risk factors to these gradients;
2) identifying and elucidating pathways by which the built environment exerts influence on persons with functional disabilities and on diverse health outcomes such as infant morbidity and mortality, asthma, perturbations of the immune system, degenerative or developmental neurologic disorders, cognitive disorders, behavioral disorders, sensory impairment, and cardiovascular disease;
3) elucidating the role of the social and physical environments and behavioral and biologic pathways in explaining the persistent disparities in cervical cancer mortality;
4) evaluating whether social class or other social factors affect the availability and efficacy of therapeutic interventions for diseases such as sickle cell disease that predominately affect specific population subgroups;
5) increasing emphasis on the collection of biomarkers in epidemiologic studies of social relationships and health;
6) examining the consequences of retirement on health and functioning;
7) characterizing differentials in income and wealth accumulation for subpopulations (such as elderly, racial and ethnic minorities, preretirement workers) and identifying the sources of these differentials and their impacts on health status.

Behavioral/Psychological Level

Individual risk behaviors (including poor diet, lack of exercise, smoking, alcohol abuse, saving and nonsaving behaviors among the elderly) may be critical factors in the etiology and progression of chronic diseases. However, for purposes of this RFA and to advance our understanding of population health, applicants should focus on the factors that affect health disparities among population subgroups, rather than solely on high-risk individuals. The effectiveness of many interventions is related to social factors that determine group behaviors, such as affordability of drugs/foods, communication, trust, and cultural beliefs.

Examples of relevant activities that involve this level of analysis include 1) elucidation of the pathways invoked by protective factors and mechanisms that act at a population level to result in positive health behavior and outcomes, and 2) the extent to which the population prevalence of known risk factors such as tobacco use, altered cognitive function, suboptimal diet, low physical activity, personality, and inadequate screening practices explain observed social gradients in disease incidence, morbidity, and mortality and disability.

Biological Levels

The biologic pathways through which social determinants might affect disease incidence, severity, and outcomes may be studied in diseases for which a significant disparity exists. Applicants are encouraged to propose studies that examine genetic susceptibility in relation to social characteristics and exposures and the connection to positive and negative health outcomes, and the relationship between social conditions and phenotype.

Examples of activities of relevance to the sponsoring institutes include but are not limited to:

1) employing animal models, including application of methods to examine gene mutations and gene expression in relation to social and/or physical environmental exposures;
2) identifying and characterizing the social and environmental factors that interact with genetic susceptibility to disease and pathophysiologic factors to contribute to variation in the prevalence of cancer, cardiopulmonary conditions, and other chronic diseases;
3) exploring the biologic pathways by which various exposures (e.g., polychlorinated biphenyls, mercury, lead) and social and cultural conditions influence neurodevelopmental and cognitive outcomes;
4) evaluating genetic factors or pathophysiologic mechanisms by which social and physical environments contribute to disparities in the prevalence of asthma, CHD, and diabetes in population subgroups;
5) determining whether social factors are equally involved in differential cancer prevalence in various subgroups, and elucidating the implications to disparities in health;
6) evaluating the interaction between social, cultural, educational, or lifestyle factors and genetic variability on cognitive decline and dementia in older population subgroups;
7) exploring the role of social/environmental factors in explaining observed biologic variability in response to heart failure, cancer, asthma, or other therapies.

Methodologic Research

Integration of multiple levels of analysis, as described above, may warrant the refinement of existing methodologic approaches or the development of novel methodologic approaches in the conduct of CPHHD research projects. Methodologic research is supported by this RFA to the extent that it is requisite to the achievement of specific aims outlined in CPHHD applications.

Research at various levels of analysis could be facilitated by methodologic advances in such areas as:

1) development of methods to improve the assessment of physical, social, psychological, behavioral, and cultural environmental exposures;
2) development of innovative and effective ways to integrate qualitative and quantitative research methods needed to investigate the complex, multilayered nature of psychosocial, behavioral, and cultural influences on health and functioning;
3) development of statistical methods to delineate relationships among behavioral, psychosocial, environmental, and biologic levels of analysis;
4) development of the most useful contextual measures of socioeconomic status (SES) at the level of neighborhoods or census tracts, how these measures relate to individual SES, and how this relationship varies for different disease outcomes;
5) development of design, implementation, and analysis strategies for multicomponent interventions that include adaptive tuning of duration or intensity to achieve optimal effects;

6) development of standardized approaches to assessing the collective health of communities.

Support of this program will be through the P50 Specialized Centers Grant. The anticipated award date is 1 April 2003.

The sponsoring institutes intend to commit approximately $15 million (NIEHS $5 million, NCI $8 million, and NIA $2 million) in fiscal year 2003 to fund seven or eight new grants in response to this RFA. An applicant may request a project period of up to 5 years and a budget for direct costs of up to $1.3 million per year.

The deadline for receipt of applications is 29 July 2002. Complete information on this announcement is available online at http://grants1.nih.gov/grants/guide/rfa-files/RFA-ES-02-009.html.

Contact: Suzanne Heurtin-Roberts, NCI, Division of Cancer Control and Population Sciences, 6130 Executive Blvd., EPN 4054, Bethesda, MD 20892 USA, 301-594-6655, fax: 301-435-7547, e-mail: sheurtin@mail.nih.gov;

Frederick L. Tyson, Chemical Exposures and Molecular Biology Branch, NIEHS, P.O. Box 12233, 111 T.W. Alexander Drive (EC-21), Research Triangle Park, NC 27709 USA, 919-541-0176, fax: 919-316-4606, e-mail: tyson2@niehs.nih.gov;

Georgeanne E. Patmios, NIA, Behavioral and Social Research Program, 7201 Wisconsin Avenue, Gateway Building, Suite 533, Bethesda, MD 20892-7936 USA, 301-496-3138, fax: 301-402-0051, e-mail: patmios@nih.gov.

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